Tara Oceans expedition: HPLC Pigments Dataset (stations 005 to 145)

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Notes:

1. Filters extracted in 100% methanol, disrupted by sonification and clarified by filtration (GF/F Whatman). Extraction time lasted 2 hours.

2. Analysis by HPLC was carried out the same day.

3. Undetected pigments (i.e. those below “limit of detection,” see Note 7) are represented by the “missing value” listed in the meta-data header (e.g. "-9999".) The “missing” value in a NON-pigment field indicates that the information is unavailable, but the “missing” value in a pigment field indicates the pigment was tested for but its concentration was below the limit of detection.

4. The analytical procedure is described in:
   Ras J, Uitz, J, and H. Claustre (2008). Spatial variability of phytoplankton pigment distributions in the Subtropical South Pacific Ocean: comparison between in situ and modeled data. Biogeosciences, 5, 353-369

5. Detection of carotenoids and chlorophylls c and b: 450 nm, chlorophyll a and derivatives: 676 nm, bchla : 770 nm.

6. Performance metrics:
   Tchla injection precision : 0.2%
   Tchla accuracy (SeaHARRE-5): 0.84%
   The accuracy of results from the 47mm filters (Flag A) can be questionable as insufficient water volumes were filtered.

7. Limits of detection: calculated in ng per injection and as the concentrations corresponding to a signal:noise ratio of 3 and for a filtered volume of 1 L.

8. Analysts: Mustapha Ouhssain and Josephine Ras

9. Some data (~10 samples) have not been included as they are invalid due to missing information or have been deleted after data verification

Titles	Description	Units	detection wavelength (nm)	LOD ng/inj	LOD for 2 L filtered (en mg.m-3)
Chlorophyll c3		mg per cubic metre	450	0.017	0.0002
sum Chl c2+c1	sum of chlorophyll c1 and c2	mg per cubic metre	450	0.021	0.0003
Sum Chlorophyllide a	Chlda + Chlda-like	mg per cubic metre	667	0.026	0.0003
Peridinin		mg per cubic metre	450	0.008	0.0001
Sum Phaeophorbid a	Phda + Phda-like	mg per cubic metre	667	0.043	0.0006
19'-Butanoyloxyfucoxanthin		mg per cubic metre	450	0.011	0.0001
Fucoxanthin		mg per cubic metre	450	0.011	0.0001
Neoxanthin		mg per cubic metre	450	0.011	0.0001
Prasinoxanthin		mg per cubic metre	450	0.011	0.0001
Violaxanthin		mg per cubic metre	450	0.014	0.0002
19'-Hexanoyloxyfucoxanthin		mg per cubic metre	450	0.011	0.0001
Diadinoxanthin		mg per cubic metre	450	0.017	0.0002
Alloxanthin		mg per cubic metre	450	0.017	0.0002
Diatoxanthin		mg per cubic metre	450	0.016	0.0002
Zeaxanthin		mg per cubic metre	450	0.016	0.0002
Lutein		mg per cubic metre	450	0.016	0.0002
Bacteriochlorophyll a		mg per cubic metre	770	0.018	0.0002
Divinyl Chlorophyll b		mg per cubic metre	450	0.005	0.0001
Chlorophyll b		mg per cubic metre	450	0.005	0.0001
Total Chlorophyll b	DV Chlb + Chlb	mg per cubic metre	450	0.005	0.0001
Divinyl Chlorophyll a		mg per cubic metre	667	0.018	0.0002
Chlorophyll a	Chlorophyll a + allomers + epimers	mg per cubic metre	667	0.018	0.0002
Total Chlorophyll a	Chla + DV Chla + Chlorophyllid a	mg per cubic metre	667	0.018	0.0002
Sum Phaeophytin a	Phytna + Phytna-like	mg per cubic metre	667	0.0359	0.0005
Sum alpha + beta carotenes	alpha carotene + beta carotene	mg per cubic metre	450	0.013	0.0002
Quality	Flag A = extraction of 47mm filters in 6ml solvent				
	Flag B = bucket sample				
	Flag C1= Doubtful				
	Flag C2 = Doubtful, see note below				
	Flag D = niskin line				
	Flag E: stand alone				
	Flag F: Pump				

C2: In the vicinity of Easter Island, the surface water concentrations are extremely low (less than 0.01 mg.m-3), and much lower than what was observed in the BIOSOPE cruise in this area. The adjacent graph illustrates the differences observed between the 2 datasets: For Tara, the surface Tchla concentrations are lower, the DCM is not as deep and Tara presents lower concentrations than for the BIOSOPE data. This could indicate a filtration or storage problem.

We therefore flag this data as doubtful until further comparison with other data that might explain these observations.